IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)
e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 15, Issue 6 Ver. XV (June 2016), PP 75-79
www.iosrjournals.org

Venous Phase Diameter of Inferior Venacava on Computed Tomography Axial Section- Predictor of Hypotension in Blunt Abdominal Trauma

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Abstract : *Diameter of IVC on CT axial section is a important predictor of hypotension in blunt abdominal trauma. CT scan of abdomen is usually requested whenever there is hemoperitoneum/ free fluid noted on FAST USG imaging in emergency department. The diameter of IVC was measured at infrarenal part. In our review of 25 cases of MDCT abdomen in blunt abdominal trauma, 40% of the cases had FIVC and there was moderate degree of hemoperitoneum.25 cases revealed, 56% of splenic injury out of which 10% has FIVC, 25% of liver injury out of which 20% has FIVC and 20% of renal injury out of which 5% has FIVC. In our study we found, venous phase diameter of IVC on CT axial section predicts hypotension in blunt abdominal trauma.*

Keywords: *Ct: Computed Tomography, Fast: Focused Assesment With Sonography In Surgical Trauma, Fivc: Flat Inferior Vena Cava, Nfivc:Non-Flat Inferior Venacava, Mdct:Multi Detector Computed Tomography*

I. Introduction

Often, trauma patients present to the emergency room hemodynamically stable, yet may deteriorate at various times after admission. Traditionally, vital signs, including HR and SBP, have been used to guide not only resuscitation but also acuity of care. Our study highlight the importance of assessing the diameter of the IVC on the initial CT scan for patients sustaining severe trauma. Not only did an FIVC have a significant correlation with other known markers of shock, patients with an FIVC had an 8.1 times increased risk of death. This finding should prompt the trauma provider to treat trauma patients with an FIVC aggressively, including admission to the intensive care unit, invasive line monitoring, and aggressive resuscitation.

Aims and objectives: To assess the diameter of IVC on CT axial section as the predictor of hypotension in blunt abdominal trauma.

Back ground: Blunt abdominal trauma are increasing due to increased RTA in recent years. With the increasing availability of CT imaging facilities, CT scan of abdomen is usually requested whenever there is hemoperitoneum/ free fluid noted on FAST USG imaging in emergency department. Routinely, solid viscera injury grading as per AAST is done on CT imaging.

Materials and methods: Contrast enhanced MDCT abdomen of the patients who presented with history of blunt abdominal trauma were studied retrospectively from the PACS database which were done over a period of three years, in view to assess diameter of IVC which acts as predictor of hypotension. The diameter of IVC was measured at infrarenal part.

Fig.1. NON-FLAT INFERIOR VENACAVA

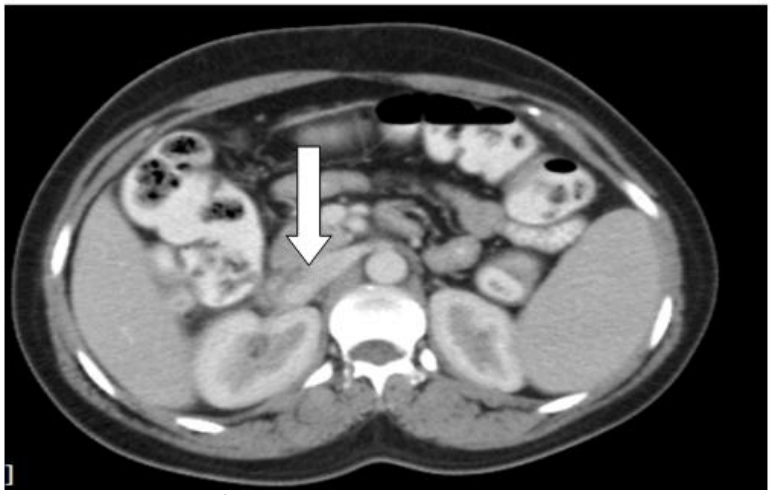


Fig. 2 . *FLAT INFERIOR VENACVA*

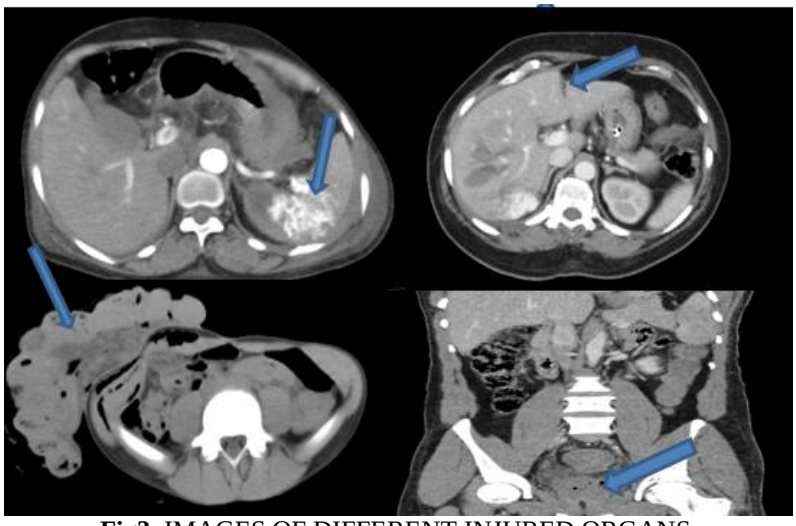


Fig3. IMAGES OF DIFFERENT INJURED ORGANS.

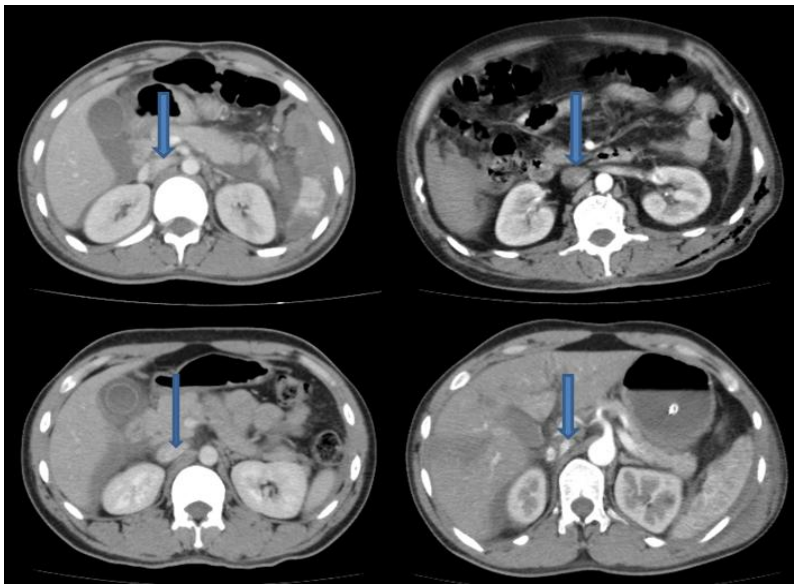


Fig 4: IMAGE SHOWING FLAT IVC

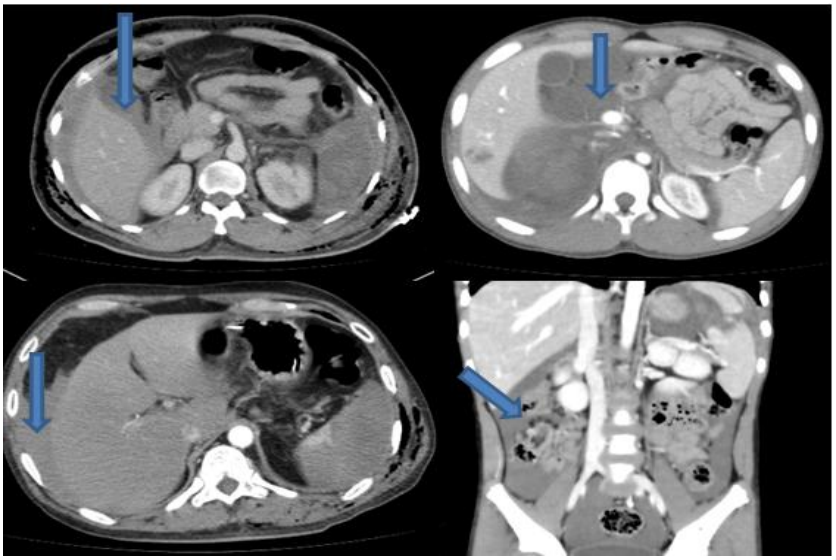


Fig 5: Image showing hemoperitoneum

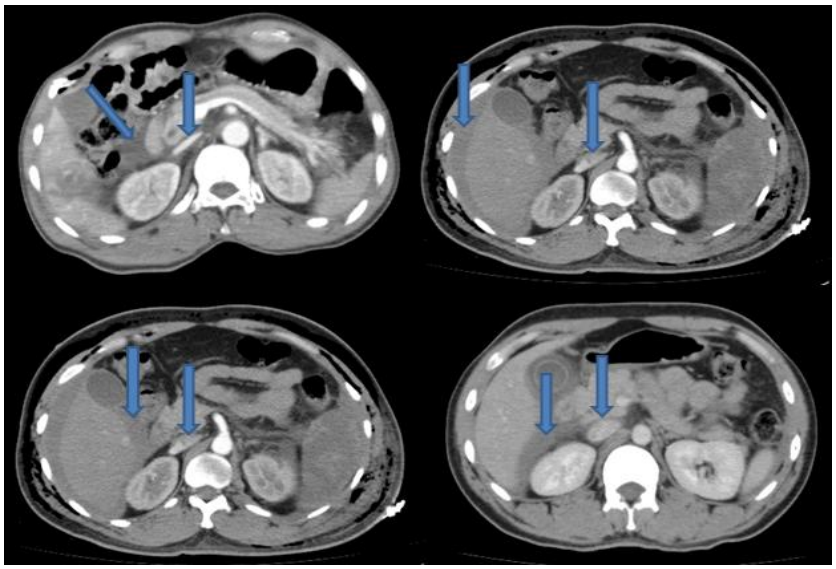
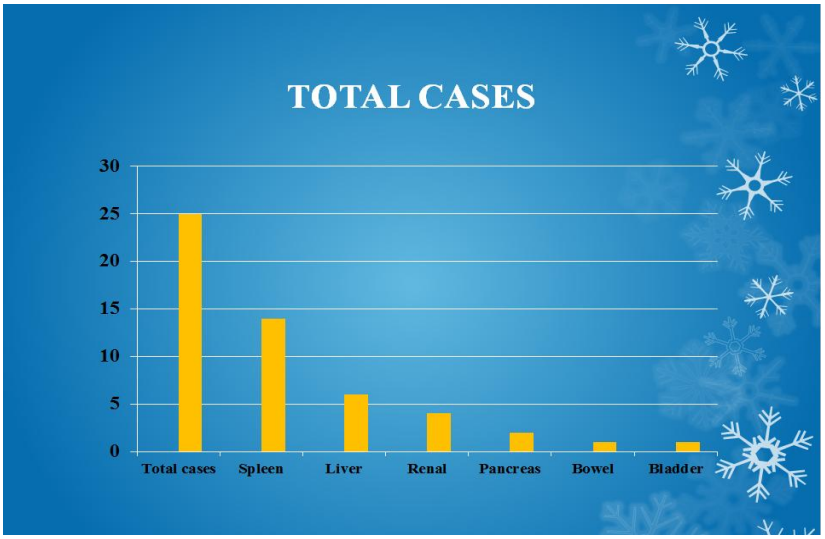
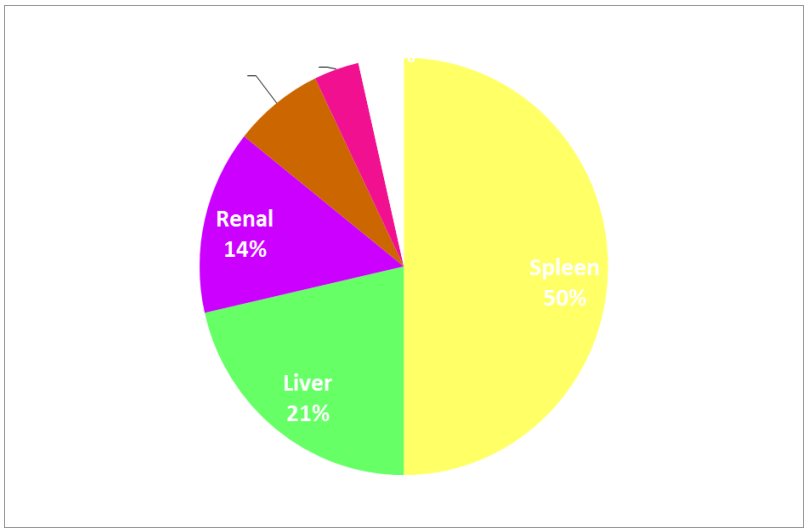


Fig6: Image showing hemoperitoneum with FIVC



Bar Graph Showing Total Number Of Cases With Different Organ Injury.



Pie Chart Showing Different Organs Injured

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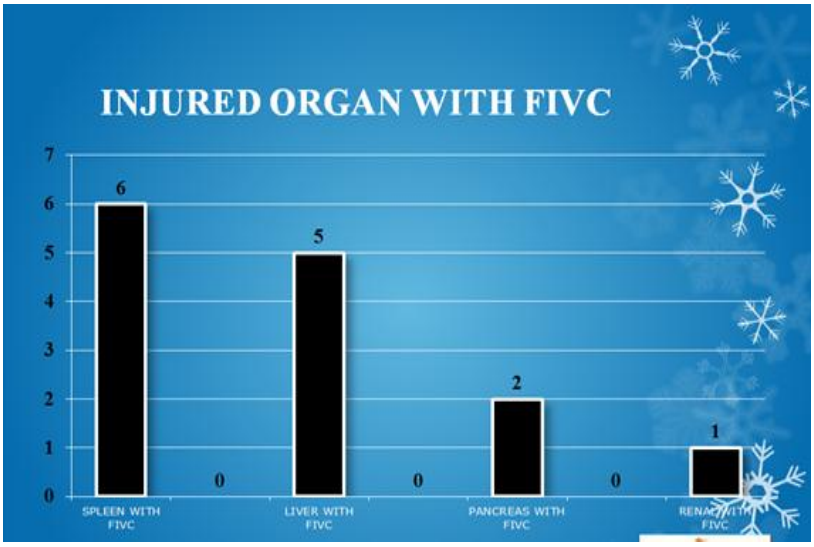
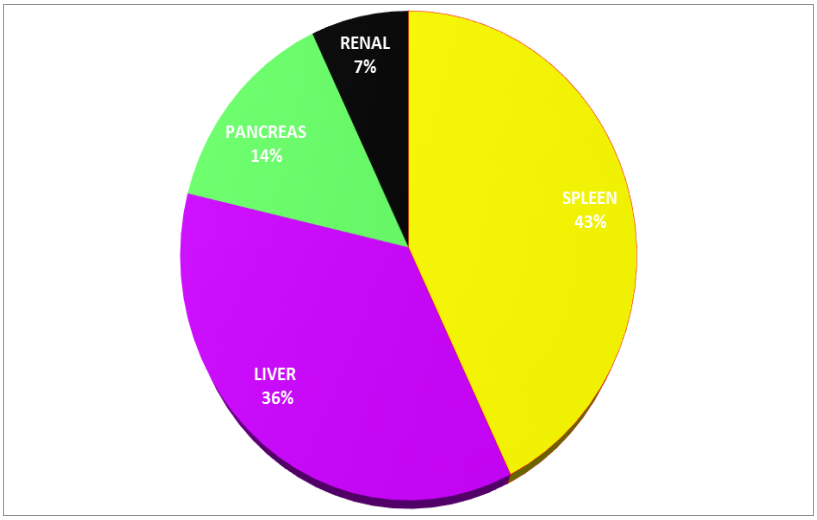
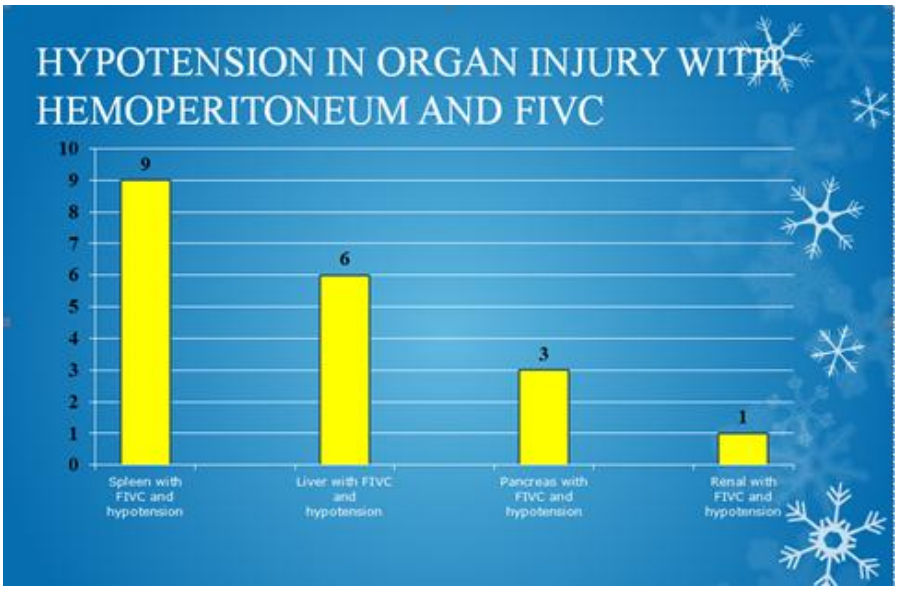


Bar Graph And Image Showing Injured Organs With Flat Ivc



9 bar Graph And Image Showing Injured Organs With Severity Of Hemoperitoneum.



Bar Graph Showing Severity Of Blunt Abdominal Viscera With Fivc, Severity Of Hemoperitoneum And Hypotension.

II. Conclusion

In our review of 25 cases of MDCT abdomen in blunt abdominal trauma, 40% of the cases had FIVC and there was moderate degree of hemoperitoneum.25 cases revealed, 56% of splenic injury out of which 10% has FIVC, 25% of liver injury out of which 20% has FIVC and 20% of renal injury out of which 5% has FIVC.

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